Foreign Animal Disease Report

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This Issue

Emergency Field Investigations

United States Department of Agriculture (USDA), Animal and Plant Health Inspection Services (APHIS), Veterinary Services (VS) and State-employed veterinarians conducted a total of 71 investigations of suspected foreign animal diseases during the period July 1 through September 30, 1989. Of the total, 34 were suspected vesicular conditions, 15 were suspected exotic Newcastle disease, 2 were suspected avian influenza and other poultry diseases, 2 were suspected hog cholera or African swine fever, 2 were suspected mucosal diseases, 9 were suspected encephalitides, and 7 were suspected exotic ectoparasite and miscellaneous conditions.

A total of 217 investigations of suspected exotic conditions was reported for FY 1989, as follows: 114 vesicular conditions, 43 exotic Newcastle disease, 4 avian influenza and other poultry diseases, 3 mucosal conditions, 7 swine septicemias, 12 encephalitides, and 34 suspected screwworm myiases and other undiagnosed conditions.

No exotic diseases were found in domestic livestock or poultry during Fiscal Year 1989. Exotic ticks were found in Texas and Ohio. All of the affected premises and livestock have been treated with pesticides, and remain under periodic surveillance (See Update on Exotic Ticks).

Screwworms in Puerto Rico

Screwworm (*Cochliomyia hominivorax*) larvae were found September 7, 1989, in a horse that had returned with two other horses to Puerto Rico on September 5, after competing in a jumping event in Venezuela. At arrival in Puerto Rico, the horses were examined by the Port veterinarian, treated prophylactically with acetic acid and hoof cleansing solution, and trucked approximately 20 miles to an approved quarantine facility, where they were routinely treated with an acaracide. Bedding from the air cargo compartment and truck in which the horses were transported was removed and bagged for deep burial or incineration. An approved acaracide was applied to the air cargo compartment, truck, and eight locations where the truck had stopped after the horses had been placed in it.

Emergency screwworm eradication operations were begun on September 11, 1989, by a team of Commonwealth and APHIS employees in Puerto Rico. A national press release followed, as well as flyers and ectoparasite reporting forms in Spanish which

were distributed to animal owners. On September 13, 1989, a news conference was held with good press coverage. Approximately 1.2 million sterile screwworm pupae were shipped to Puerto Rico from Mexico. After the sterile flies emerged, they were dispersed in an area around the airport, the quarantine station, and where the truck had traveled after offloading the imported horse. Plans were made to continue to disperse sterile flies twice each week over a 6-week period and to increase communications with animal owners through Commonwealth and APHIS swine health inspection personnel. Informational flyers, fly collection containers, and other materials were to be distributed.

Dispersal of sterile screwworm flies was temporarily interrupted by Hurricane Hugo during the week of September 18, 1989.

Update on Exotic Ticks

Retrospective investigation of ostrich importations has been completed by APHIS veterinarians following the May 1989 discovery of exotic ticks on African ostriches, imported during April through a privately owned and operated APHIS-approved quarantine facility in Illinois (see Foreign Animal Disease Report 17-3).

The following report details the ongoing investigation and treatment to assure that no exotic ticks remain in the United States.

On January 25, 1989, 50 juvenile ostriches were imported from Tanzania, Africa, to a privately owned Quarantine Station, in Schaumburg, Illinois. Five chicks did not survive the 30-day quarantine. The remaining 45 chicks were released to premises in Indianapolis, Indiana (1 ostrich); Kapaa, Hawaii (2 ostriches); and Ocala, Florida (42 ostriches). No ticks have been found on these ostriches.

On April 2, 1989, 44 adult ostriches were imported from Tanzania, Africa, to a privately owned, USDA-approved quarantine station in Mundelein, Illinois (Editor's note: A report in the Fall 1989 issue of the FAD Report (17-3:5) erroneously indicated that these ostriches were from Zimbabwe). On May 2, 1989, 25 of these ostriches were released from the 30-day quarantine period. Then, on May 18, 1989, a veterinarian at Andrews, Texas, collected 3 ticks from 1 of 4 adult ostriches that had been part of the group of 25. The ticks were first submitted to the Texas A&M University, Department of Entomology, College Station, Texas, and later to the Smithsonian Institution, Washington, D.C., where they were identified as *Amblyomma gemma* and *Hyalomma* species. *A. gemma* is a known vector of heartwater disease. *Hyalomma* have been experimentally shown to be capable of transmitting East Coast fever. VS Emergency Programs immediately developed and distributed instructions for inspecting and treating ostriches, other animals, premises, and vehicles, and for detecting and eliminating possible exotic ticks. Subsequently, exotic ticks were identified and eliminated at Andrews, Quinland, Dennison, and La Mesa, Texas, and Graysonville, Ohio. The last exotic tick that was found through continuing, periodic inspections was collected June 7, 1989, at Dennison, Texas. Carbon dioxide tick traps, cloth drags, and the examination of wildlife on five premises associated with imported adult ostriches have been used in the surveillance program. These activities were to be repeated and expanded within the next 30 days. Sentinel animals were also being used in attempts to find any remaining exotic ticks on premises which received adult ostriches from the import station in Illinois.

Approximately 780 ostriches were imported and released between October 1, 1988, and May 24, 1989, when exotic ticks were identified in Texas. Of these, about 350 were imported through privately owned facilities and approximately 430 through the

USDA's New York Animal Import Center.

A complete assessment of the economic threat of the incursion of exotic ticks into the United States has not been completed. If these potential vectors of heartwater and East Coast fever should enter and become established in the United States, they would become major threats to the livestock industry. This is especially true for the southern States where tropical ticks could survive the moderate winter. The potential economic burden could be much greater than the losses sustained in the 1800's and early 1900's by the Texas fever tick, *Boophilus annulatus.*, and the Texas fever agent, *Babesia bigemina.*

Ectoparasites on Imported Rhinoceroses

On July 16, 1989, 10 black rhinoceroses arrived at Dallas, Texas, from South Africa via Frankfurt, Federal Republic of Germany. They were inspected for ticks upon arrival and were sprayed with an approved acaracide. Twenty male ticks were collected and submitted to USDA's National Veterinary Services Laboratories (NVSL), Ames, Iowa, where they were identified as *Dermacentor rhinocerinus*, *Amblyomma sparsum*, and *Hyalomma truncatum.* Only four of the ticks were alive at the time of collection.

On August 29, 1989, the rhinos were again treated for ectoparasites. Subsequently, one rhino became icteric, depressed, anorexic, and reluctant to move. The attending veterinarian sedated the rhino and collected serum, whole blood, and blood smears. Serum and whole blood were sent to NVSL, and the blood smears were submitted to the University of Missouri's College of Veterinary Medicine.

On September 1, 1989, the USDA Area Veterinarian in Charge for Texas reported that NVSL found the serums positive for *Babesia bigemina*, 4 plus at a dilution of 1:5. Possible theileria organisms were microscopically observed at the Missouri laboratory. Because *Theileria parva* and *T. lawrenci* are causative agents of East Coast fever, attempts are being made to obtain the original specimen for further study. NVSL sent initial specimens to the U.S. Department of Agriculture's foreign Animal Disease Diagnostic Laboratory (FADDL), Plum Island, New York. Plans were made to collect additional specimens on or about September 17, 1989.

Avian Influenza Antibodies in Virginia Chickens

On June 1, 1989, a Harrisonburg, Virginia, broiler-breeder producer submitted six live chickens to the nearby Virginia Veterinary Diagnostic Laboratory. There had been no change in egg production, feed, or water consumption, and no significant changes were found upon post-mortem examination. Mortality rate in the flock appeared to be near normal. Then, on June 7, serums from four of the six chickens reacted positively to avian influenza (AI) antigen in the agar gel precipitin test. Serums were immediately sent to NVSL. On June 19, NVSL reported insufficient serum for a hemagglutinin typing test. Neuraminidase type 3 was identified and more specimens were requested. On June 30, 1989, the Harrisonburg laboratory found AI antibodies in 9 of 20 serums that had been collected from the same flock on June 27. The serums were sent to NVSL, where H_7N_3 AI antibodies were confirmed on July 14, 1989.

On July 21, 1989, the State of Virginia quarantined the affected premises. On July 25, 1989, swab specimens and additional blood samples were collected. On July 27, 1989, three epidemiologists arrived in Harrisonburg to participate in epidemiological investigations. The owner of the "index flock" had earlier traced all movements of eggs, equipment, trucks, and other possible vectors. Serum samples were obtained from associated flocks and tested to determine the possible presence of AI antibodies. The source flock was also tested and found to be free of AI antibodies. All flocks within a

2-mile radius of the index premises were tested. The local poultry industry and flock owner planned to expand testing to a 4-mile radius during the week of July 31, 1989.

On July 31, 1989, another flock owned by the same company in the Harrisonburg, Virginia, area which received chickens from the index flock was shown to have AI antibodies. The positive flock was near the index case and consisted of 45-week-old broiler-breeder laying hens. The index flock was approximately 44 weeks of age. The chickens had arrived from the poultry supplier at about 22 weeks of age. Serums had been collected from a representative number of these chickens at 28 weeks of age and frozen. Later tests disclosed AI antibodies at about the same frequency as with the more recently collected samples, suggesting exposure to H_7N_3 antigens in mid-April 1989.

On Friday, July 28, 1989, serologically negative spent hens were added to the index flock. These remained in the flock for approximately a week. Tracheal and cloacal swabs were collected on the last day for laboratory testing for possible evidence of AI. The owner depopulated both flocks with AI antibodies during the week of August 6, 1989.

AI virus was not found in any of the tested flocks and mortality and morbidity rates in the flocks remained normal.

Avian Influenza Antibodies in Florida Chickens

On August 23, 1989, swab specimens and nine serums were collected from a live poultry dealer's chickens in Hialeah, Florida, and submitted to NVSL, where the serums were shown to contain H_5N_2 AI antibodies. No virus was found, and no clinical signs of disease were reported in the chickens. The premises was depopulated, cleaned, and disinfected. However, AI H_5N_2 virus was isolated from chickens that were placed on the premises as sentinels. Further studies are in progress in an effort to trace the isolated strain to a possible source outside of the affected premises.

Vesicular Stomatitis on Ossabaw Island

On June 15, 1989, the Southeastern Cooperative Wildlife Disease Study, Athens, Georgia, reported that a pig on Ossabaw Island, Georgia, had a vesicle on its snout. Specimens were collected and submitted to NVSL, where New Jersey-type vesicular stomatitis virus (VSV-NJ) was isolated. VSV-NJ was found in Ossabaw Island swine in June 1987 and 1988 (see Foreign Animal Disease Report 16-4:1-2, and 15-3:1). VSV-NJ was also isolated from a pool of sand flies, *Luzomyia shannoi*, collected on Ossabaw Island on June 3, 1988. (Dr. M. A. Mixson and Dr. J. L. Williams, USDA, APHIS, Hyattsville, Maryland 20782, (301) 436-8073)

Foreign Animal Disease Update

The Office International des Epizooties (OIE) reported the following diseases during April, May, and June 1989:

In South America, Argentina reported 46 outbreaks of **foot-and-mouth disease** (FMD) types C and O, and Colombia reported 84 outbreaks of FMD types A and O. Outbreaks of type A were reported in Ecuador during February, involving 36 cases in cattle. Paraguay reported type O in four outbreaks involving cattle and swine. Uruguay reported 25 outbreaks of types O and C. Type A was reported in two outbreaks in Venezuela.

In Europe, Italy reported 70 outbreaks of FMD type C and 1 outbreak of type A. The type C outbreaks exposed more than 156,000 cattle and swine. The USSR reported eight outbreaks of type A.

In the Middle East, Bahrain reported outbreaks of FMD type O. Israel reported 6 outbreaks of type O, and Oman reported 18 outbreaks of type O in cattle and goats. Saudi Arabia and Yemen reported outbreaks of type O. Turkey reported 4 outbreaks of type A involving 10 cases with 4,950 animals exposed to the virus, and 49 outbreaks of type O involving 156 cases with over 98,000 cattle and sheep exposed.

In Africa, Benin reported outbreaks of untyped FMD and Cameroon reported outbreaks of FMD type O. Type O was also reported in Kenya and the Sudan. South Africa and Zimbabwe reported type SAT 2.

In Asia, Hong Kong, Kuwait, Nepal, and the Philippines reported outbreaks of FMD type O and Pakistan reported types A, O, and A1.

The Pan-American Health Organization (PAHO) reported two herds of cattle in Bolivia had FMD type C, and four herds in Brazil had type O and one herd had type A.

Colombia reported outbreaks of **vesicular stomatitis** types Indiana (VS-IN) and New Jersey (VS-NJ), involving 116 cases. Ecuador reported outbreaks of untyped VS. Twenty cases of VS-NJ were reported in Mexico and two outbreaks in Panama. PAHO reported outbreaks of VS-NJ in El Salvador, Guatemala, Costa Rica, and Honduras, and outbreaks of VS-IN in El Salvador.

Kenya reported outbreaks of **rinderpest** during January, February, and April. Burkina Faso reported two outbreaks of peste des petits ruminants (PPR: **pest of small ruminants**) in February, and Ghana had outbreaks in January. Oman reported 20 outbreaks of PPR.

Contagious bovine pleuropneumonia (CBPP) was reported in Benin, Burkina Faso, Kenya, and Kuwait.

Lumpy skin disease (LSD) was reported in the Congo, Ghana, Kenya, and Senegal. Zambia reported 51 cases of LSD and Zimbabwe 59.

The only reports of **Rift Valley fever** (RVF) came from Kenya, where outbreaks have occurred from January through April.

Bluetongue (BT) was reported in Botswana, Kenya, Namibia, South Africa, and the United States. Namibia reported 9 outbreaks with 96 cases and South Africa reported 34 outbreaks. The serotypes were not given.

Australia reported isolating BT serotype 23 during February from a sheep in a sentinel flock that is participating in a continuing program to monitor the possible introduction of BT into Australia. The present isolate is no more pathogenic than the previous isolates of this serotype in Australia.

In Africa, Algeria reported 38 outbreaks of **sheep and goat pox** (SGP) with 544 cases, Burkina Faso reported 4 outbreaks, and Kenya reported outbreaks between January and May. Kuwait reported 15 outbreaks with 59 cases and over 3,000 animals exposed. Senegal reported outbreaks in March, Tunisia reported 11 outbreaks from January through April, and Morocco reported 11 outbreaks. In Asia, Oman reported 9 outbreaks of SGP and Pakistan reported over 211,000 animals exposed during 63 outbreaks. Turkey reported 100 outbreaks involving 1,038 cases, with 467,458 sheep and 6,535 goats exposed to the disease.

APHIS has been notified by the U.S. Counselor for Agricultural Affairs, Madrid, Spain, that the results of laboratory tests have confirmed outbreaks of **African horse sickness** (AHS), again in the southern region of Andalucia (See Foreign Animal Disease Reports 16-4:4, 16-4:7-12, 17-1:2-6, and 17-2:3). The first horse affected in the current recurrence died on July 31, 1989, at the site of the 1988 outbreak, the Sotogrande polo club in Cadiz province. Type 4 AHS virus has been confirmed as the cause of death. A total of 497 horses either died or were sacrificed due to AHS. AHS has also been reported in the province of Huelva, some distance from the Sotogrande polo club, and about 25 miles from Portugal.

Isolation, immobilization, and vaccination have been ordered for all equines within a 35-kilometer radius of the Sotogrande polo club, and in 24 townships in Huelva province. The immobilization order and vaccination are being applied to all equines in the Andalucian provinces of Huelva, Sevilla, Cadiz, Malaga, and Cordoba. A total of 10,000 horses had been vaccinated by the time this report was written.

Because a type 4 AHS virus caused an epidemic that killed 162 horses in Andalucia during the fall and early winter of 1988-1989, and an outbreak in central Spain in the fall of 1987, veterinary officials are speculating that a reservoir may now exist in Andalucia or that the disease entered with an infected imported horse. The occurrence of three confirmed outbreaks of AHS within a period of 2 years could result in a declaration that AHS is endemic in Spain, thereby jeopardizing that country's eligibility to host equestrian events of the 1992 Olympic Games.

(Editor's note: On September 28, 1989, the government of Portugal reported African horse sickness in Algarve province, adjacent to the Huelva province of Spain.)

Italy reported 80 cases of **African swine fever** (ASF) in 15 outbreaks. A total of 190 swine died and 268 were destroyed. Portugal reported 104 outbreaks of ASF in which 402 animals died and 27,255 animals were exposed. In Africa, Malawi reported six outbreaks of ASF.

Argentina, Colombia, Ecuador, Uruguay, Paraguay, and Mexico reported outbreaks of **hog cholera** (HC). Mexico reported 24 outbreaks with 909 cases and 6,483 swine exposed, and Colombia reported 4 outbreaks. PAHO also reported three outbreaks of HC in Colombia. Six outbreaks of HC were reported in Austria, and 4 in Belgium, with 5,685 swine exposed. All affected swine were destroyed. West Germany reported 11 outbreaks of HC with 609 cases, and Italy reported outbreaks during April, May, and June. Italy also conducted a serological survey in wild boars from March 24 to May 31, 1989. HC immunofluorescence tests were performed and five animals were found positive. Korea reported 21 outbreaks with 2,370 swine exposed, Hong Kong reported 27 outbreaks, the Philippines reported 2,354 cases, and Taiwan reported 10 outbreaks with 784 cases and over 5,000 swine exposed. Madagascar also reported the occurrence of HC.

Madagascar reported two outbreaks of **Teschen disease** (TD), and the USSR reported four outbreaks.

Twenty four countries reported outbreaks of **Newcastle disease** (ND). The virus was not typed and was presumed to be velogenic viscerotropic. The affected countries were Mexico, Colombia, Ecuador, Italy, Albania, Austria, Yugoslavia, Turkey, Tunisia, South Africa, Botswana, Algeria, Kuwait, Ghana, Zambia, Kenya, Malawi, the Congo,

Egypt, Hong Kong, Korea, Pakistan, the Philippines, and Madagascar. Two outbreaks were reported in Botswana, 21 in Korea with 52,310 birds exposed, 8 outbreaks in Ghana with 3,506 exposed, 6 in Italy with 8,586 cases, 4 in Madagascar involving 1,900 birds, 4 in Malawi, 7,400 cases in Mexico, 11,728 cases in the Philippines in which 4,008 birds died, 34 outbreaks in Turkey with 39,367 cases and over 574,000 exposed birds, 42 outbreaks in Yugoslavia, and 8 outbreaks in Zambia with 235 birds exposed.

Five countries reported outbreaks of **velogenic viscerotropic Newcastle disease** (VVND): Botswana, Ecuador, Pakistan, and South Africa; the USSR reported 2 outbreaks involving 40,600 birds.

Mexico confirmed 10 cases of necrotic hepatitis or **viral hemorrhagic disease** (VHD) of rabbits during August (See Update on Rabbit Disease in Mexico). These occurred in the States of Jalisco, Morelas, and Guerrero. All affected premises have been depopulated. Plans for sentinelization and repopulation in all affected areas will be implemented when additional funds are made available by the Mexican government. Information reported during January, February, and March may include previously unreported data from outbreaks which occurred in previous months. In some instances, diagnosis may have been strictly clinicopathologic without laboratory confirmation.

Screwworm myiasis due to the North American screwworm (*Cochliomyia hominivorax*) has been reported from Libya. Cattle, sheep, goats, camels, a zoo monkey, and humans were affected. A first report in February 1989 emanated from the identification of a sample sent to the British Museum of Natural History. By July, the government of Libya confirmed nine cases of C. hominivorax myiasis during the period January 1 to July 21, in the Garabolla- Ein-Zara (Anzara), Tripoli province. Three additional cases were recorded in Gaser Khiar, Libya, about 60 km from Tripoli. (Dr. M. J. Gilsdorf, APHIS, USDA, IS, OS, Hyattsville, Maryland 20782, (301) 436-8892).

Wildlife Surveillance in Antigua

The tropical bont tick (*Amblyomma variegatum*) was introduced into the Caribbean on cattle from Senegal, West Africa, about 1830, and has since spread to 17 Caribbean islands (see Foreign Animal Disease Report 10-1:6-10). *A. variegatum* is a vector of heartwater, a disease of ruminants in Africa, caused by the rickettsia, *Cowdria ruminantium*. Heartwater is present on three islands in the Caribbean: Antigua, Guadeloupe, and Marie Galante. The tropical bont tick and heartwater together pose a serious threat to the livestock of many of the Caribbean islands and also to large areas of North, Central, and South America. Previously unexposed ruminant populations are highly susceptible to heartwater. Introduction of this foreign animal disease into new areas could result in high rates of mortality and the establishment of a cycle of infection involving native wildlife and additional tick vectors.

To determine if *A. variegatum*, and thus heartwater, can be controlled in the Caribbean, a Pilot Eradication Project (PEP) has been funded for Antigua by the U.S. Agency for International Development. Wild animals are important hosts in the life history of *A. variegatum* in Africa and have been implicated as potential hosts in the Caribbean; therefore, a wildlife component has been included within the PEP. The wildlife component is funded through a Cooperative Agreement between the Southeastern Cooperative Wildlife Disease Study (SCWDS) and the Office of International Cooperation and Development, USDA. Its objectives are to: (1) determine if wildlife species on Antigua are hosts for *A. variegatum*, and if so, determine the dynamics of changes in the tick numbers on selected wildlife species relative to the eradication project; (2) determine which wildlife hosts are migratory and therefore could be involved in the dissemination of *A. variegatum*; and (3) observe the relative abundance of wildlife on Antigua and

determine if any episodes of wildlife mortality on the island during the project are related to the pesticide treatments.

Field studies of the wildlife component began on Antigua in September 1988. Surveillance conducted thus far is part of the pretreatment evaluation and will provide baseline data on tick infestations on wildlife and population estimates for selected wildlife species. Semiannual field surveys for ticks and wildlife population studies are to continue during the eradication project.

The monitoring of small mammals and birds on Antigua revealed that island-wide tropical bont tick infestation rates for mongooses and cattle egrets ranged from 5 to 16 percent and 3 to 27 percent, respectively. These data confirm the suitability of wildlife on Antigua as hosts for *A. variegatum*. Only larvae and nymphs were found. Infestations were lower during May-June 1989 than during the September-October 1989 sampling period. The decline of infestation rates probably reflects seasonal dynamics of *A. variegatum* in the region. Mongooses and cattle egrets have been chosen to serve as barometers of wildlife involvement in Antigua as they were the only wildlife species on which substantial *A. variegatum* infestations were found.

Studies are also underway to determine the potential of the cattle egret to serve as a disseminator of *A. variegatum* in the Caribbean. The cattle egret has been suspected as a disseminator of *A. variegatum* because of its association with livestock and pastures, relatively recent colonization of the Caribbean, potential for long distance movement, and role as a host for immature stages of A. variegatum. To help evaluate the potential of cattle egrets to disseminate the tick, SCWDS has begun a study of the movement patterns of these birds in the Lesser Antilles. Cattle egrets are being captured, banded with U.S. Fish and Wildlife Service-numbered leg bands, and one wing of each bird is being marked with a brightly colored dye. The birds are released unharmed and reports of sighting of the color-coded birds have been solicited. Cattle egrets captured on Antigua are marked with a blue dye. Birds on Barbuda, Guadeloupe, and Marie Galante will be marked with yellow, red, and black dyes. Work in the French West Indies will be in cooperation with the Institut d'Elevage et de Medecine Veterinaire des Pays Tropicaux, Guadeloupe, France.

Although the marking phase of this project began only recently, a cattle egret marked on Antigua during the May-June 1989 field season was seen June 20 near Goyave on Basse-Terre, Guadeloupe. Antigua and Guadeloupe are separated by over 35 miles of ocean. This single observation could be an indication of regular inter-island movements, or a relatively rare case of movement of a single bird. Additional observation will be needed for evaluation of the movement patterns of cattle egrets in the Lesser Antilles and will be important in the assessment of the potential for cattle egrets to disseminate *A. variegatum*.(Joseph L. Corn and Victor F. Nettles, Southeastern Cooperative Wildlife Disease Study, College of Veterinary Medicine, the University of Georgia, Athens, Georgia 30602, (404) 542-1741)

Chinese Swine and Swine Semen Imported

Chinese swine and swine semen were imported into the United States during July 1989, culminating a series of regulatory actions intended to accommodate a long-standing interest of the USDA's Agricultural Research Service (ARS) in having them for research purposes, while assuring that no foreign disease would be imported.

ARS contracted with Iowa State University, the University of Illinois, and the government of China to import three breeds of swine: Meishan, Fenjian, and Meng, from Suchou and Harbin. The project objective is to conduct research on production and

disease-resistant traits that may benefit the U.S. swine industry. The Chinese swine are known to produce an average of 16 to 20 piglets twice-yearly. Both universities and ARS will conduct research separately and then coordinate their findings. The Chinese breeds will be crossed with U.S. swine to increase litters.

Veterinary Services (VS) first developed and published health requirements to qualify the swine for importation through the Harry S. Truman Animal Import Center (HSTAIC), and then entered into a cooperative agreement with ARS, acting on behalf of all three groups, to carry out the project. Three VS veterinarians travelled to China to supervise the project. A total of 244 swine were isolated in 3 separate, approved facilities in China, while being tested for foot-and-mouth disease (FMD), swine vesicular disease (SVD), hog cholera (HC), Japanese B encephalitis (JE), pseudorabies (PR), brucellosis (BR), and tuberculosis (TB). Upon the completion of a 6-day isolation period and negative test results, 144 animals were selected and flown to HSTAIC to start a 120-day quarantine. Upon arrival, the animals were examined and sprayed for ectoparasites. They were then tested for the diseases already mentioned, tested 21 days later for FMD, and retested 60 days after initial testing by another full series of tests.

While in HSTAIC, the swine were placed in contact with sentinel animals at a ratio of one contact calf and one contact pig to eight imported swine. The sentinel animals had been tested and found free of diseases for which the imported animals had been examined. At the completion of the 60-day test period, heparinized blood was taken from each imported swine and inoculated into sentinel pigs. Approximately 30 days later, serum was collected from these sentinel animals and tested for the same diseases for which the imported swine were tested.

Of the 144 swine that cleared pre-embarkation quarantine in China, 140 were released from HSTAIC. One Meishan boar died due to massive hemorrhaging, two Meishan boars died of pneumonia, and one Meishan gilt was sacrificed because of antibody: low titers for SVD. There were no clinical signs of any exotic or other communicable diseases, and laboratory tests of tissues yielded no SVD virus.

On July 26, after completion of the 120-day quarantine and negative test results, 140 animals were released from HSTAIC and transported to research centers at the University of Illinois, Iowa State University, and USDA's Meat Animal Research Center at Clay Center, Nebraska. These institutions do not plan to release genetic material to other universities for 3 years, and no genetic materials will be released to the public for at least 5 years. This is to prevent the possible introduction of negative generic characteristics into domestic herds.

Simultaneous to the swine importation, swine semen was also imported from China under a project which had been requested several years ago by DeKalb Swine Breeders*. This was the first time swine semen was imported into the United States from a country that is known to have FMD.

Appropriate regulations were developed and published by APHIS regarding health requirements for Chinese swine semen. Boars were selected by the importer, isolated for 60 days, and tested for FMD, SVD, HC, JE, PR, and TB.

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*Disclaimer: Trade names are used in this publication solely for the purpose of providing specific information. Mention of a trade name does not constitute a guarantee or warranty of the service by the U.S. Department of Agriculture or an endorsement by the Department over other services not mentioned.

After completion of the isolation period, with negative test results, the boars were flown to Beijing to start a 30-day semen collection period.

Two VS veterinarians travelled to China to test the donor boars and supervise the collection of semen by DeKalb personnel. Both the donor and teaser animals were tested for FMD, BR, SVD, HC, JE, PR, and TB at the beginning and end of the 30-day collection period. They were also tested 21 days after the last collection for all the diseases just mentioned, except TB and JE. In addition to these tests, a total of 5 ml of each ejaculate of semen was collected and submitted to the Foreign Animal Disease Laboratory for pathogen isolation tests for FMD, PR, SVD, HC, JE, and PR. After the project was completed, the semen was taken by the USDA Veterinary Medical Officer to the United States to be stored at the New York Animal Import Center until completion of the tests.

On July 12, 1989, all tests were found negative by the Foreign Animal Disease Laboratory and approximately 1,200 doses of the semen were released to the importer. (Peggy Burke, Staff Specialist, Import-Export Animals Staff, VS, APHIS, USDA, Hyattsville, Maryland 20782, (301) 436-7476).

Update on Rabbit Disease in Mexico

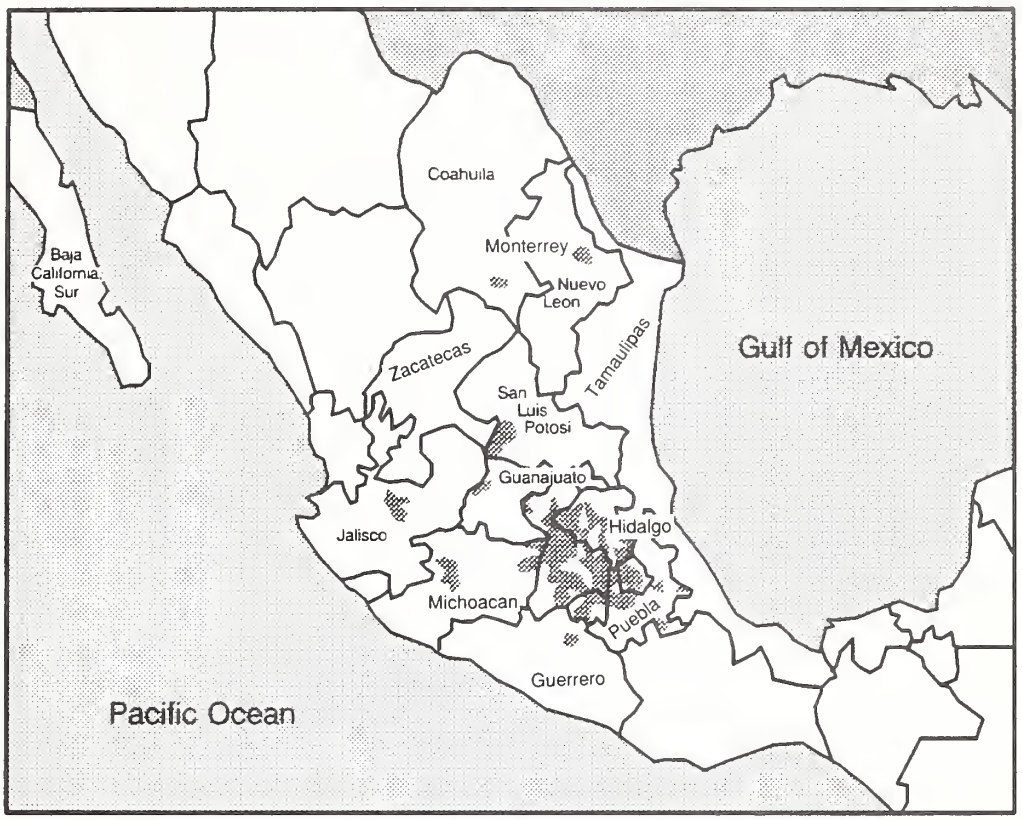
An outbreak of a foreign disease of rabbits in Mexico was reported in the previous three issues of the Foreign Animal Disease Report (17-1:8, 17-2:7, and 17-3:*). The disease has been called viral hemorrhagic disease of rabbits (VHD), necrotic hepatitis of rabbits, and other descriptive names by investigators in the Asian and European countries where it has caused major losses for domestic rabbit producers. VHD was first diagnosed in Mexico in late January 1989, by the Mexico-United States Commission for the Prevention of Foot-and-Mouth Disease and Other Exotic Diseases of Animals (CPA). The disease entered and spread to several locations in Mexico during December 1988.

This article updates the information already given.

Retrospective investigation and epidemiological analysis of the gathered information disclosed the following history. On November 19, 1988, a shipment of 18,900 kg of dressed, frozen rabbit carcasses that had arrived in southern California from the People's Republic of China, November 14, 1988, entered Mexico by truck at Nuevo Laredo, Tamaulipas. Four days later, the carcasses were delivered to the warehouse of a large supermarket firm in Cuautitlan, Mexico. On December 6, an employee of the "El Marfil" farm in Actopan, located 140 km from Cuautitlan, travelled to the Cuautitlan warehouse, came into contact with the carcasses, and returned to Actopan, where he came into contact with live domestic rabbits that were under his care.

On December 11, a rabbit dealer brought a number of rabbits from "El Marfil" and then, December 13, sold some of them to the Rabbit Production Unit of the Cuautitlan School of Advanced Studies (FESC). By December 18, the FESC rabbit colony suffered high death losses. Deliveries, sales, and product distribution during December had been so extensive that, by January 1989, the disease had been transported to many other locations in Mexico. By mid-February, rabbits were dying of VHD in the states of Guanajuato, Hidalgo, Jalisco, Michoacan, Morelos, Puebla, Queretaro, San Luis Potosi, Tlaxcala, and the Federal District (DF).

Viral Hemorrhagic Disease in Rabbits Areas Affected in Mexico



During the first days of February, the CPA director and other Mexican animal health officials established procedures to eradicate VHD and begin an intensive information campaign throughout the country. Immediate consultation with the USDA's VS Emergency Programs, Foreign Animal Disease Diagnostic Laboratory, and International Services disclosed a lack of information on the disease. Then, through consultation with an investigator in Italy, it appeared that the disease in Mexico was identical to an epizootic disease that had been afflicting European, Chinese, and Korean rabbit populations since its first appearance in China in 1984. The outbreak in Mexico was evidently the first reported incident of the disease in the Western Hemisphere. Guatemala, Belize, the United States, and the Office International des Epizooties (OIE) were notified February 6 and 7, 1989, of the presence of VHD in Mexico, by the Mexican Secretariat of Agriculture and Water Resources (SARH).

An animal health emergency was declared February 21, 1989. The Mexican Subsecretary of Livestock placed all members of the National System for Emergencies in Animal Health (SINESA: an emergency task force similar to the U.S. Regional Emergency Animal Disease Eradication Organization (READEO)) on alert to perform regional and zonal investigations for the possible presence of VHD and prepare for mobilization if the need arose. The steps taken followed a strategic plan created only months earlier. Subsequently, the outbreak area was found to be primarily in the

Valley of Mexico. A team of 34 SINESA members were called to organize and carry out specified eradication measures. These measures included an intensified public information campaign, laboratory confirmation of suspected VHD on each affected premises, establishment of quarantines, stopping the movement and sale of rabbits and rabbit byproducts in all affected geographic areas, depopulation of rabbits on contaminated premises, certification of owners for the eventual replacement of confiscated rabbits, cleaning and disinfection of depopulated premises, and follow-up surveillance.

By July 31, 63,966 rabbits had died from VHD in 10 Mexican States and the DF. From May 8 to June 5, over 34,000 rabbits were sacrificed by occipital-vertebral subluxation and either buried with caustic soda or incinerated. An additional 65,000 rabbits were eliminated in the States of Mexico, San Luis Potosi, Guanajuato, Guadalajara, Tlaxcala, Morelos, Hidalgo, and Queretaro.

During the initial days of the eradication campaign, a hemagglutination test using human type O erythrocytes was used for VHD diagnosis. By the end of February, the CPA laboratory developed an immunofluorescence test and adapted other techniques to detect viral antigen and antibody with hemagglutination and hemagglutination-inhibition tests, and a rapid plate agglutination test. CPA laboratory tests also identified the most efficient disinfectants for VHD virus to be 1 percent formalin and 2 percent calcium carbonate solution. Preliminary studies indicated that wild rabbits, particularly the volcano rabbit, appear resistant to the VHD virus. Additional research is planned and in progress, including cooperative studies on VHD pathogenesis at the National University of Mexico College of Veterinary Medicine.

After affected premises are released from quarantine, the owners with official replacement certificates are to receive healthy rabbits from government rabbit breeding centers.

By mid-August, repopulation had taken place in the States of Michoacan and San Luis Potosi, and in Zapopan and Tlajomulco, Jalisco. A few new foci of VHD have been reported in Murelos, Jalisco (Guadalajara and Jocotepec) Guerrero (three foci), and Veracruz (two foci), for a total of 12 States and the DF affected by the VHD epizootic.

(Adapted from information received from Dr. Juan Lubroth and Dr. John Mason, CPA, USDA, APHIS, American Embassy, Mexico City, Mexico)

Secretary's Advisory Committee

The Secretary of Agriculture's Advisory Committee on Foreign Animal and Poultry Diseases met August 15, 1989, at the USDA's Plum Island Disease Center, Plum Island, New York, for a tour of the Center and discussion of its research plans, mission, and future needs of the facility. The meeting continued August 16- 17, 1989, at New Haven, Connecticut. Topics of discussion on August 16 included new diagnostics, changes in basic services, global perspective of foreign diseases, environmental concerns during emergency operations, and research initiatives involving new technology. The importation of llamas was discussed and comments were received from importers, industry representatives, and the public who attended the meeting. The importation of ostriches was discussed on August 17. Importers and industry representatives offered comments. The Committee and APHIS officials then met in executive session to prepare their report. Twenty-four resolutions and recommendations were drafted and forwarded to the Secretary's office concerning the Plum Island Animal Disease Center, standards for the importation of domestic animals: the safe importation of llamas, ostriches, red deer, and other animals and birds; user fees for import services, foreign travel, international trade, quarantine facilities, African horse sickness,

animal-borne disease, the equine industry, hog cholera, tick eradication, heartwater, and environmental concerns. Committee members are: Mr. Clint Booth, Dallas, TX; Dr. E. T. Bray, Tuskegee, Alabama; Dr. Everett Bryant, Storrs, CT; Mr. Ron Cameron, North Little Rock, AR; Mr. Dan Childs, Lake Placid, FL; Dr. Steve Conboy, Lexington, KY; Mr. Jack Dahl, Gackle, ND; Mr. Don Gingerich, Parnell, IA; Dr. Tommy Goodwin, Pittsburg, TX; Ms. Arlene H. Hamm, Rapid City, SD; Dr. Cathy Johnson, Edmonds, WA; Mr. Alfred Keating, Park Ridge, IL; Mr. John Lang, Madison, WI; Dr. Charles Livingston, San Angelo, TX; Dr. Victor Nettles, Athens, GA; Dr. James Nofziger, Canoga Park, CA; Mr. Charles Parker, Columbus, OH; Mr. Walter Stemler, Waterloo, IL; and Dr. Arthur Tennyson, Schaumburg, IL. (Dr. M. A. Mixson, Emergency Programs, VS, APHIS, USDA, Hyattsville, Maryland 20782, (301) 436-8073)

Data Bank

A Data Bank of more than 68,000 published articles on foreign animal diseases, and several domestic diseases of livestock and poultry, is maintained by Veterinary Services (VS) at Hyattsville, Maryland. While this information resource was originally established to provide VS with instant, round-the-clock access to data that may be needed during national animal disease emergencies, the Data Bank is also available to other Hyattsville, Maryland, staffs, VS field stations, laboratories, and others in and outside of the Federal establishment—especially concerning data on the prevention, diagnosis, and control of animal diseases and pests.

Most Data Bank documents are stored on microfilm and accessed by computer. Additional, mostly unpublished articles are filed separately. Copies of the microfilm are located at Hyattsville, Maryland; Mexico City, Mexico; Ottawa, Canada; and Brasilia, Brazil.

More details about the Data Bank and instructions for requesting Data Bank information may be obtained at Area Code (301) 436-8687; FAX (301) 436-8818; or by writing to; VS Data Bank, Emergency Programs, VS, APHIS, USDA, 6505 Belcrest Road, Hyattsville, Maryland 20782.

Subject Index

This subject index covers FAD Report volumes 10 through 17. It provides quick access to articles that contain information related to the index words. Subjects are cited by volume number (issue number), page number or span of pages, and year of publication. Readers who desire to maintain a complete file of the indexed articles can obtain copies of prior issues by sending a request to the editor. A subject index will be published each year in the winter issue.

Questions about the FAD Report may be sent to:

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